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COMPARISON OF OUTCOMES IN HIGH-RISK PCI WITH AND WITHOUT PERCUTANEOUS VENTRICULAR ASSIST (IMPELLA)

Oral Contributions
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Session Title: ST-Elevation Myocardial Infarction and High-Risk PCI
Abstract Category: 40. TCT@ACC-i2: ACS/AMI/Hemodynamic Support
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Background: Although use of assist devices in high risk percutaneous coronary intervention (HRPCI) has increased, current Impella registries (USpella, Europella) did not compare HRPCI with and without support. We used historic controls from the Dynamic Registry (Dyn Reg) to evaluate the benefit of Impella in HRPCI.

Methods: Two percent of patients (n=214) underwent HRPCI within the Dynamic Registry (Dyn HRPCI); unprotected left main PCI (ULM n=38), ≥2 vessel PCI with ejection fraction < 30% (n=65), PCI of all 3 vessels (n=47) and ≥2 vessel PCI with rotational atherectomy (n=64). Baseline traits and outcomes were compared to the overall Dyn Reg, USpella and Europella.

Results: One-year mortality (14.7% vs 4.6%, p<0.001) and major adverse cardiac events (33.2% vs 21.5%, p<0.001) were higher in Dyn HRPCI than Dyn Reg. Compared to Dyn HRPCI, Europella (n=144) and USpella (n=175) patients were older (66±13 vs 72±10 and 70±10, p<0.001), had more renal insufficiency (14% vs 29% and 33%, p<0.001) and were more likely to have had a previous myocardial infarction (MI) (37% vs 53% and 56%, p≤0.002). Europella and USpella patients had lower ejection fraction (26±6 and 31±17 vs 40±17, p<0.001), but less multivessel disease (82% and 89% vs 100%, p<0.001). ULM PCI was performed more frequently (53% and 51% vs 18%, p <0.001). In-hospital mortality was similar in USpella and Dyn HRPCI (3% vs 6%, p=0.34), but less patients in USpella sustained periprocedural MI (1% vs 6%, p=0.03) or required repeat revascularization (0% vs 3%, p=0.02). Bleeding requiring transfusion was higher in USpella vs. Dyn HRPCI (10% vs 4%, p=0.02). There was no difference in 30-day mortality between Europella and USpella vs. Dyn HRPCI, (6% and 4% vs 7%, p=0.70 and 0.27). There was a lower incidence of MI in Europella and USpella vs. Dyn HRPCI (0% and 1% vs 6%, p=0.002 and 0.03) and less repeat revascularization (0.6% in USpella vs 5% in Dyn HRPCI, p=0.015) at 30 days.

Conclusions: Although PCI-related mortality was unchanged, MI and repeat revascularization were reduced with use of Impella, despite the challenges of intervening on sicker patients. These data support the use of Impella in high risk PCI, with the trade-off of a small increase in significant bleeding.